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Beltline Energy – 5.28.26 Response to additional water use Question

This responds to the Commission's follow-up question on the project's water use. The 50–60 homes comparison refers to domestic potable water: restrooms, break rooms, and landscaping at the facility. Beltline Energy supports engineering verification of that figure as a condition of the special use permit. Cooling water is a separate engineering question, addressed below.

At the May 6 Wamego Commission meeting, the City of St. Marys stated three things it did not want from this project: a well drilled, use of its community water, and use of its groundwater. The commitments below address each of those directly, and extend further:

- No cooling water will be drawn from new groundwater wells.
- No cooling water will be drawn from the municipal potable system.
- Any water appropriation for the project requires a permit from the Kansas Division of Water Resources under the same review applied to every other water user in the state.
- Any process or cooling water discharge will be permitted under KDHE and EPA authority (40 C.F.R. Parts 122 and 403) before operation; no untreated discharge.
- If a non-potable source is not available or not approved for cooling, the campus will be designed as an air-cooled facility.

Within those commitments, three things remain engineering decisions resolved during the design phase and the subsequent DWR appropriation review: the cooling technology selected, the resulting water volumes, and the source of any non-potable supply. The sections below detail the permitting process, the two separate water systems, the Kansas water law that governs the appropriation, and the national context.

1. Standard Permitting Process for Water Use Documentation

Pottawatomie County's process for documenting industrial water use is established by the proposed Data Center Overlay regulations at Section 9.5.3(h), which set water conservation requirements as a condition of any special use permit for a facility of this kind. A special use permit application for an industrial water user in the county typically includes the documentation below. Each component is prepared and certified by a licensed professional engineer.

- Project-specific water use projections for both domestic potable and cooling water systems, with separate accounting reflecting the independent sources and volumes of each.
- Water Usage Effectiveness (WUE) targets for the cooling system, measured under ISO/IEC 30134-9:2022, the international standard metric for data center water consumption.
- Phase-by-phase projections of daily and annual intake, evaporation, blowdown, and return

volumes, tied to the cooling technology selected for each phase.

- Water flow diagrams covering intake, treatment, use, monitoring, and return; and a water management plan for any evaporative cooling system specifying source, treatment, and return-water pathways.
- Annual water use reporting against projected targets, made available to the county and the public over the life of the project.

This is the documentation set a special use permit application requires for an industrial water user of this scale, and the same documentation the Commission would receive from any comparable applicant in the county.

2. Domestic Potable Water and Cooling Water Are Separate Systems

The 50–60 homes comparison applies to one of two independent water systems at the facility. Distinguishing them clarifies the original statement and frames the engineering work that follows.

Domestic Potable Water

Every commercial and industrial facility uses potable water for the same purposes a residence does: restrooms, break rooms, drinking water, and landscaping. A data center campus staffed by a relatively small number of on-site personnel generates domestic potable demand comparable to roughly 50 to 60 residential homes. That is what the original comparison described.

Cooling Water

Cooling is an engineering question. Air-cooled systems use no water but consume more energy; evaporative systems use water and achieve lower energy use; direct liquid cooling at the chip or rack level operates as a closed loop with minimal water loss. The technology selected depends on site-specific conditions (climate, water availability, equipment options, and workload profile) and is evaluated during the engineering phase. Water Usage Effectiveness (WUE), measured per ISO/IEC 30134-9:2022, is the performance metric. Where non-potable water is available and approved, evaporative or hybrid cooling delivers better thermal efficiency. Where it is not, the campus will be designed as an air-cooled facility, as committed at the opening of this response.

Consistent with the commitments above, if evaporative cooling is selected, the source may be non-potable water from the existing JEC reservoir infrastructure, over 600 acres fed by the Kansas River. That source does not compete with municipal or agricultural users, and any appropriation is subject to the DWR impairment review described in Section 3. Any alternative non-potable source would have to meet the same test (no competition with municipal or agricultural users) to be considered.

3. Kansas Water Law and Existing User Protections

Kansas water law provides the operating framework for how water is allocated among users in the state. Four principles govern this project:

1. Prior appropriation. Kansas water law operates under the doctrine of prior appropriation, codified at K.S.A. 82a-701 et seq. Every water right carries a priority date, and the principle of "first in time, first in right" governs the relationship among rights.
2. Impairment review. Before any new water appropriation is granted, the Chief Engineer of the Kansas Division of Water Resources reviews the application and must deny it if the proposed use would impair existing water rights. This review applies to every new appropriation in the state.
3. Senior and junior priority. Any water right issued to Beltline Energy would carry a priority date junior to the existing municipal, agricultural, and industrial rights in the area, including those held by St. Marys, area farmers, and the Jeffrey Energy Center. During periods of shortage, junior rights are subordinate to senior rights.
4. DWR enforcement. The Kansas Division of Water Resources administers the appropriation system, monitors compliance, and enforces water rights through metering, reporting, and administrative authority.

This framework has governed Kansas water rights for over a century. It applies to Beltline Energy on the same terms as every other water user in the state, and it provides the legal mechanism through which existing users (municipal, agricultural, and industrial) are protected from impairment by new appropriations.

Regulatory Sequence

The framework above sequences through four stages over the life of the project:

A. Zoning entitlement establishes the framework: permitted uses, development standards, setbacks, water conservation requirements, and reporting obligations.
B. Engineering design follows entitlement and develops the cooling system for the actual conditions at the site: climate, water availability, energy infrastructure, and equipment options. WUE targets and water volumes are set at this stage.
C. Water appropriation review occurs when the engineer applies to the Kansas Division of Water Resources for a water right (if evaporative cooling is selected). DWR evaluates the application for impairment and either grants or denies the appropriation.
D. Building permits and operational compliance enforce the engineered design through construction inspection, commissioning, metering, and ongoing reporting.

4. National Context

It is worth situating the discussion in the broader picture of who uses water in Kansas, and where the public conversation about data center water use is coming from.

- Agricultural irrigation dwarfs every other category of water use in Kansas. USGS data show irrigation accounts for the overwhelming majority of consumptive water use statewide (Circular 1441, 2018), concentrated in the drier western half of the state; a single center-pivot field there can use more water in a season than this campus would use in a year. Industrial use is a small share of the total, and data center cooling is a small share of industrial use.

- Per-facility comparisons to other commercial water users are unintuitive. A typical full-service car wash runs hundreds of vehicles a day at 35 to 70 gallons each; over a year, a single car wash can consume more water than a well-designed data center of comparable footprint. Golf courses, food processors, and beverage bottlers each use multiples of what a properly engineered data center campus would draw.

- Industry efficiency is improving rapidly. WUE and PUE have fallen substantially as liquid cooling, hybrid systems, and chip-level thermal designs have replaced first-generation evaporative cooling towers (ASHRAE TC 9.9, 2021; Shehabi et al., 2024). The Beltline campus will be designed against current best practice rather than legacy benchmarks.

Cooling water is an engineering question the special use permit application is built to answer. The commitments at the opening of this response fix the parameters that matter to the City of St. Marys and to existing senior rights holders. Within those parameters, the cooling technology, water volumes, and source of any non-potable supply will be determined during the engineering phase, certified by a licensed professional engineer, and reviewed under Kansas water law and Pottawatomie County's adopted standards. That is the process this project is asking the Commission to apply: the same process the Commission would apply to any comparable applicant, evaluated on the engineering record this project will produce.

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Sources Cited

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2. ISO/IEC 30134-9:2022. Information Technology — Data Centres Key Performance Indicators — Part 9: Water Usage Effectiveness (WUE). 2022.
3. K.S.A. §§82a-701 et seq. (Kansas Water Appropriation Act).
4. Shehabi, A., et al. 2024 United States Data Center Energy Usage Report. LBNL-2001637. Lawrence Berkeley National Laboratory. December 2024.
5. U.S. Geological Survey, Estimated Use of Water in the United States in 2015. Circular 1441. 2018.
6. 40 C.F.R. Part 122. EPA Administered Permit Programs: National Pollutant Discharge Elimination System (NPDES).
7. 40 C.F.R. Part 403. General Pretreatment Regulations.
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